

Estuarine Habitat section of the ANPR Response Document
Action Item: Staging Technical Workshops

*Protecting Fish Populations of the Bay Delta by Ensuring
Adequate Quantities of Interseasonal, Low Salinity Habitat*

Course of Action: Convene two scientific workshops beginning in the spring of 2012 to update the scientific basis for protecting estuarine habitat, fisheries, and other beneficial uses affected by Delta outflow.

Desired Outcomes:

1. Scientific consensus of agency and academic biologists on utility of 3D modeling of low salinity zone instead of X2 as basis of protecting estuarine habitat.
2. Recommended biological indicators of changes in the volume and location of the low salinity zone and measureable impacts of anthropogenic stressors that degrade quality of estuarine habitat.
3. Quantitative model describing changes in the volume of estuarine habitat due to climatic variability and water management for all seasons of the year.
4. A paper with technical appendices that will be submitted to the SWRCB for their proceedings on Delta Outflow Standards.

Logistics & Materials:

1. Common library of scientific papers prepared about X2, the low salinity zone and its ecological community.
2. Common dataset on environmental conditions in the upper estuary as measured by IEP, USGS, UCSF and others with particular emphasis on data since 1994.
3. UnTRIM model outputs showing and quantifying the volume and areal extent of estuarine habitat associated with different values of X2.
4. White paper describing comparisons of UnTRIM results with X2 results for species previously associated with X2 – an update of Kimmerer 2002.

Draft Agendas

1. Estuarine habitat as modeled in 3D vs X2 (summary prepared and presented by BH)
 - a. Modeling accuracy assessment for proposed purpose
 - b. Comparison with Delta Smelt habitat calculations of Feyrer et al.
 - c. Correlations with other species
 - i. Compare
 - ii. Changes through time
 - d. Nature of relationships
 - i. UnTrim Modeled areal extent, volumetric extent, centroid vs X2
 - ii. With LSZ species
 1. Desirable, compare with Jassby et al 1994 and Kimmerer 2002
 2. Undesirable – jellyfish? Microcystis? LMB/Egeria? Clams?
 - iii. With species of higher salinity regimes
 - e. Other stressors and geographic specific impacts
 - i. Intakes of SWP, CVP CCWD, Mirant
 - ii. Outfalls of local NPDES and Sac Regional
 - iii. Other?
 - f. Possible importance of geometry and geography
 - i. Cross-sectional diversity
 - ii. Connectivity to other habitats, particularly Suisun Marsh
2. What are predictive models from unimpaired inflows, storage levels, or ?
 - a. Time steps – weekly, monthly, seasonally?
 - b. Different seasons
 - i. Flood control
 - ii. Water storage
 - iii. Water delivery
 - c. Changes in relationships through historic data
 - i. Trends
 - d. Step changes
3. How could protection of Estuarine habitat be adaptively managed?
 - a. Performance measures – assessment of how well management actions achieve desired level of protection of habitat quantities
 - b. Indicators – measurable biological responses expected from management actions
 - c. Sampling strategies – scale, intensity and methods of sampling
 - d. Flexibility – short-term manipulations consistent with targeted level of protection?

4. What are effects of expected changes on extent of estuarine habitat?
 - a. BDCP – change in geometry and nearby habitats
 - b. SWRCB – change in outflow
 - c. Catastrophe – loss of islands

Possible Attendees:

From 1991:

James Cloern (USGS)
Bruce Herbold (USEPA)
Wim Kimmerer (UCSF)
Alan Jassby (UCD)
Peter Moyle (UCD)
Stephen Monismith (Stanford)
Charles Simenstad (UofW)

Newbies:

Randy Baxter (DFG)
Bill Bennett (UCD)
Jon Burau (USGS)
Larry Brown (USGS)
Mike Chotkowski (USFWS)
Steven Culberson (USFWS)
Chris Enright (DSC & DWR)
Fred Feyrer (USBR)
Les Grober (SWRCB)
Lenny Grimaldo (USBR)
Kathy Hieb (DFG)
Josh Israel (USBR)
Frank Loge (UCD)
Jay Lund (UCD)
Michael McWilliams (Independent Modeler)
Anke Mueller-Solger (DSC)
Matt Nobriga (USFWS)
Denise Reed (UofL)
Ted Sommer (DWR)
Mark Stacy (UCB)

Potential Facilitators¹

Lisa Bueller

¹ Tim will contact Lauren Hastings at the DSC for additional recommendations and references for facilitators

Potential Technical Editors

Lauren Buffaloe

Potential Venues:

Clarksburg Church

Jean Harvey Community Center – Walnut Grove

Marconi Center – Tomales Bay

Ryde Hotel

Yolo Bypass Wildlife Refuge